17671

11920

3 Hours / 100 Marks Seat No. | | | | | | | | |

Instructions : (1) All Questions are *compulsory.*

(2) Answer each next main Question on a new page.

(3) Illustrate your answers with neat sketches wherever necessary.

(4) Figures to the right indicate full marks.

(5) Assume suitable data, if necessary.

(6) Use of Non-programmable Electronic Pocket Calculator is permissible.

(7) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. (A) Attempt any THREE : **12**

(a) Give the frequency and wavelength range for the following :

(i) IR

(ii) UV radiation

(b) Draw a neat labelled block diagram of CPM machine.

(c) State any four effects of ultrasound on Human Body.

(d) State and explain Lewis hunting principle.

(B) Attempt any ONE : **6**

(a) Draw block diagram of ultrasound therapy machine. State the function of each block. List any four technical specifications of ultrasound machine.

(b) List the safety precautions while handling of cautery machine (any three).

2. Attempt any FOUR : **16**

(a) State the need of traction unit. List applications of traction unit.

(b) State and explain different current waveforms used in nerve and muscle stimulator.

(c) List the conditions in which cold therapy should be avoided.

(d) Define leakage current. Draw experimental setup for measuring leakage current.

(e) List maintenance steps to be carried out for ESU.

(f) Give the significance of following range of currents on Human Body :

(i) 20 μA

(ii) 20-80 μA

(iii) 25 mA

(iv) 10 A

3. Attempt any FOUR : **16**

(a) List any four applications of LASER.

(b) Draw a neat labelled diagram of ultrasound transducer.

(c) Compare unipolar and bipolar modes of electrosurgical unit (2 points each).

(d) Draw a neat labelled block diagram of Nerve muscle stimulator. State the functions of each block.

(e) Give the physiological effects of cold therapy on human body.

4. (A) Attempt any THREE : **12**

(a) Suggest application technique of SWD for the knee-joint treatment. Draw neat diagram of it.

(b) List any four technical specifications of nerve muscle stimulator.

(c) Draw a neat diagram of UV lamp. State its working principle.

(d) Describe the principle of interference current therapy with neat diagram.

(B) Attempt any ONE : **6**

(a) Explain the following modes of ESU :

(i) Cutting

(ii) Co-agulation

(iii) Fulguration

(b) State the concept of long-wave diathermy and list two applications of it.

5. Attempt any FOUR : **16**

(a) Compare CPM and traction unit on basis of four points.

(b) Draw the circuit diagram of microwave diathermy. List its any four technical specifications.

(c) Name the current used for treatment of atonic paralysis, muscle weakness, functional paralysis, denervated muscle.

(d) Explain any four application techniques of cold therapy.

(e) Define the following and state their rage :

(i) microshock

(ii) macroshock

(f) State the concept of electrostatic discharge.

6. Attempt any FOUR : **16**

(a) List the maintenance steps for ultrasound therapy machine.

(b) Give the electrical hazard in hospital environment due to leakage current.

P.T.O.

(c) State and explain the construction of IR Lamp.

(d) Suggest possible solutions for the following :

(i) Equipment is not turning ON

(ii) No cut or co-agulation mode is working

(iii) Electric shock to user

(iv) No control over the intensity

(e) Draw and explain block diagram of solid state cautery machine.
